
Calathea singularis and *Stromanthe palustris*, Two New Species of Neotropical Marantaceae

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ABSTRACT. *Calathea singularis* from southeastern Brazil and *Stromanthe palustris* from Costa Rica are described as new. *Calathea singularis*, vegetatively unique within the Marantaceae, has a pulvinus of two separate parts rather than the pulvinar cells continuous and encircling the uppermost portion of the petiole. *Stromanthe palustris*, endemic to the Atlantic lowlands of Costa Rica, is described for inclusion in *A Manual to the Plants of Costa Rica* treatment.

Calathea singularis H. Kennedy, sp. nov. TYPE: Brazil. Espírito Santo: Munic. de São Mateus, Reserva Biológica de Sooretama, Lagoa do Macucu, umbrofila crescendo em local úmido, ca. 40 m, 16 Mar. 1972, D. Sucre 8698 (holotype, RB 157123; isotypes, K, RB). Figure 1.

Species pulvino haud integro autem bi-partito a congeneribus et insupra confamiliis diversa.

Rosulate, shortly caulescent herb, 30–70 cm high, bearing 4–15 leaves, 3–6 basal and 1 cauline on main shoot, lateral shoots develop in axils of basal leaves bearing (0)1–3 leaves at the base and 1(–3) cauline. Plants deciduous, dying back to the rhizome during the dry season; the roots bearing terminal, tuber-like swellings. Leaves homotropic. Leaf blade lightly pleated, herbaceous, elliptic to broadly elliptic, apex rounded with short acumen, base rounded to obtuse; 23–47 × 13–29 cm. Leaf blade above with stomates present, grass-green, glabrous, midrib likewise; leaf surface below glaucous silvery green or faintly tinged purple, glabrous, midrib pale green, V-shaped, glabrous. Pulvinar region narrowly triangular in cross section, pulvinar cells present only in a small area between the base of the blade and the sheath and as a narrow band on the very back shortly extending along the midrib, green with pulvinar cells brownish, glabrous, region between blade and sheath 0.2–0.4 cm, total length of area of pulvinar cells 0.9–1.7 cm, depth 0.3–0.5 cm. Petiole lacking. Leaf sheath auriculate, the central portion triangular in cross section, the sides broadly spreading above to strongly reflexed at base, herbaceous, light green,

often reddish purple at very base of subtending leaf, 14–23 cm long in subtending leaf, others 23–34 cm long. Stem green, internode below subtending leaf 6–20 cm long. Inflorescence terminal on main shoot, imbricate, ovoid, apex acute (in side view), 8–14 × 3.5–5 cm, additional inflorescences terminating the shoots produced in the axils of the basal leaves. Peduncle green, occasionally tinged pink at apex, minutely pilose (14×), 3.5–7(–9) cm long. Bracts 36–44, spirally arranged, herbaceous, lowermost bract reniform, obtuse with short acumen, bract shape changing from depressed ovate to depressed elliptic in lower bracts to broadly obovate in upper ones, apex obtuse to 90°, occasionally with slight acumen, 3.1–4.2 × 3.5–5.8 cm, bracts 10 and higher less than 4.3 cm wide; each bract subtends 2–4 flower pairs. Outer surface of bracts green, whitish at base in upper ones, glabrous; inner surface lighter green, glabrous. Bicarinate prophyll membranaceous, broadly ovate, obtuse, translucent faint green to transparent, glabrous, 1.8–2.2 × 1.4–2.1 cm, 0.7–1 cm wide, carina to carina. Secondary bract membranaceous, ovate, acute, translucent faint green, glabrous, 1.5–1.8 × 0.8–1 cm. Bracteoles 1 per flower pair, membranous medial, carinate, transparent, glabrous, 0.3–0.9 × 0.2–0.3 cm long, occasionally reduced or absent in first flower pair. Sepals membranaceous, ovate-elliptic, obtuse, translucent white, glabrous, 5–6 × 3.5–4 mm. Corolla 43–47 mm long, tube cream above, white below, glabrous, 27–30 × 2.5 mm with slit to 10 mm long; corolla lobes subequal, narrowly elliptic to oblong, obtuse to acute, pale cream-yellow, glabrous, 12–16 × 4–7 mm. Outer staminode broadly obovate to elliptic, emarginate, pale cream-yellow, 11–15 × 12–13 mm. Callose staminode oblong, apex acute, the apical 2 mm petaloid, the rest callose, pale cream-yellow, 9–10 × ca. 4 mm. Cucullate staminode pale cream-yellow, ca. 6 × 4 mm. Stamen with lateral petaloid appendage to 1.5 mm wide. Style and stigma cream, the back of the style turns brown after tripping. Ovary smooth, pink, glabrous, ca. 2 × 2 mm. Capsule unknown.

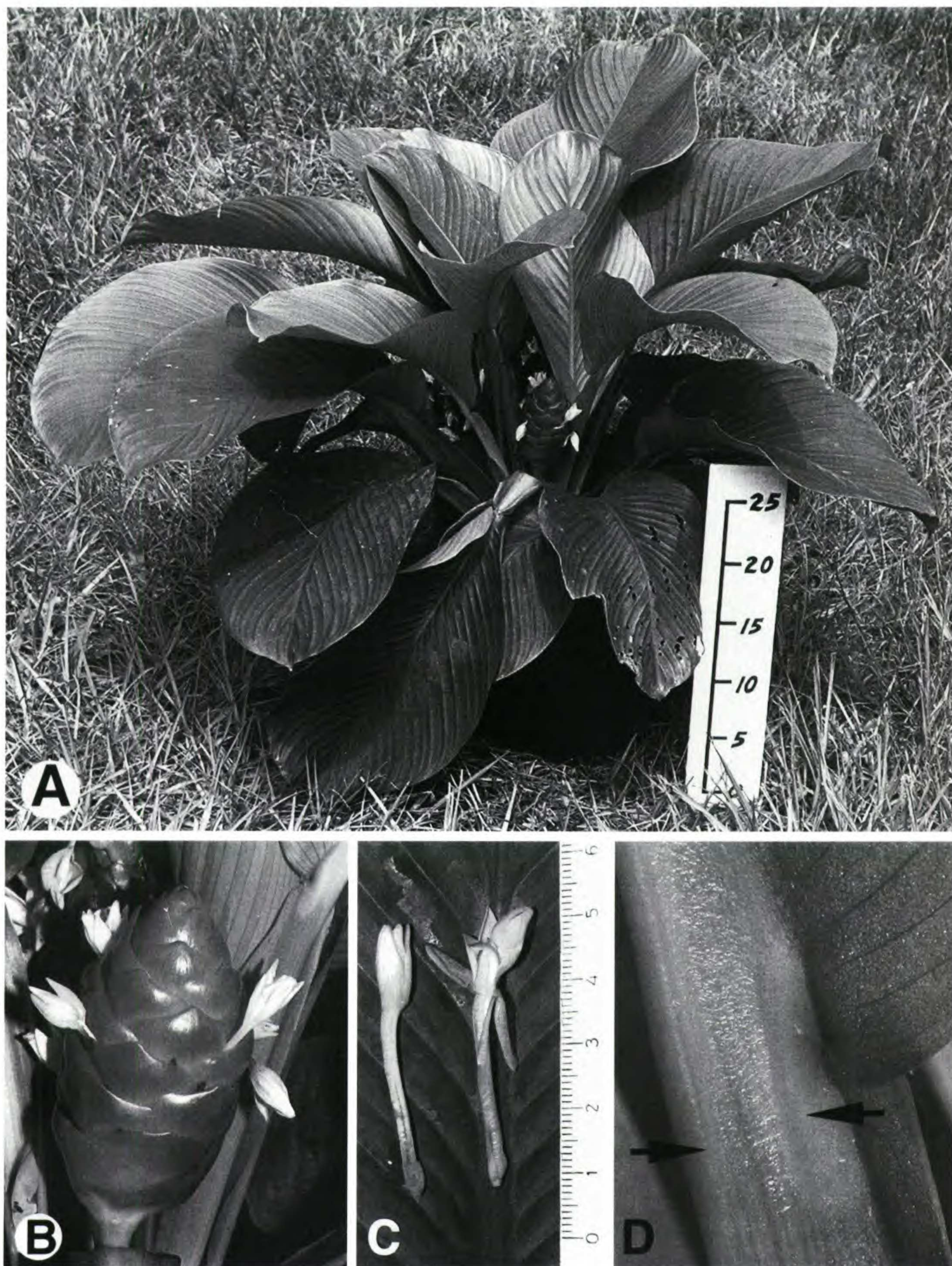


Figure 1. *Calathea singularis* H. Kennedy. —A. Habit. —B. Inflorescence. —C. Flowers on upper leaf surface. —D. Pulvinar region. Arrows indicate the two separate regions of pulvinar cells.

Calathea singularis belongs to *Calathea* sect. *Breviscapus* Benthham, by virtue of its several basal leaves, the inflorescence borne on the leafy shoot, and spirally arranged bracts. It is distinguished

from all other species of Marantaceae by the unique pulvinus structure of two distinct regions of pulvinar cells rather than a single continuous cylindric band of pulvinar cells surrounding the uppermost

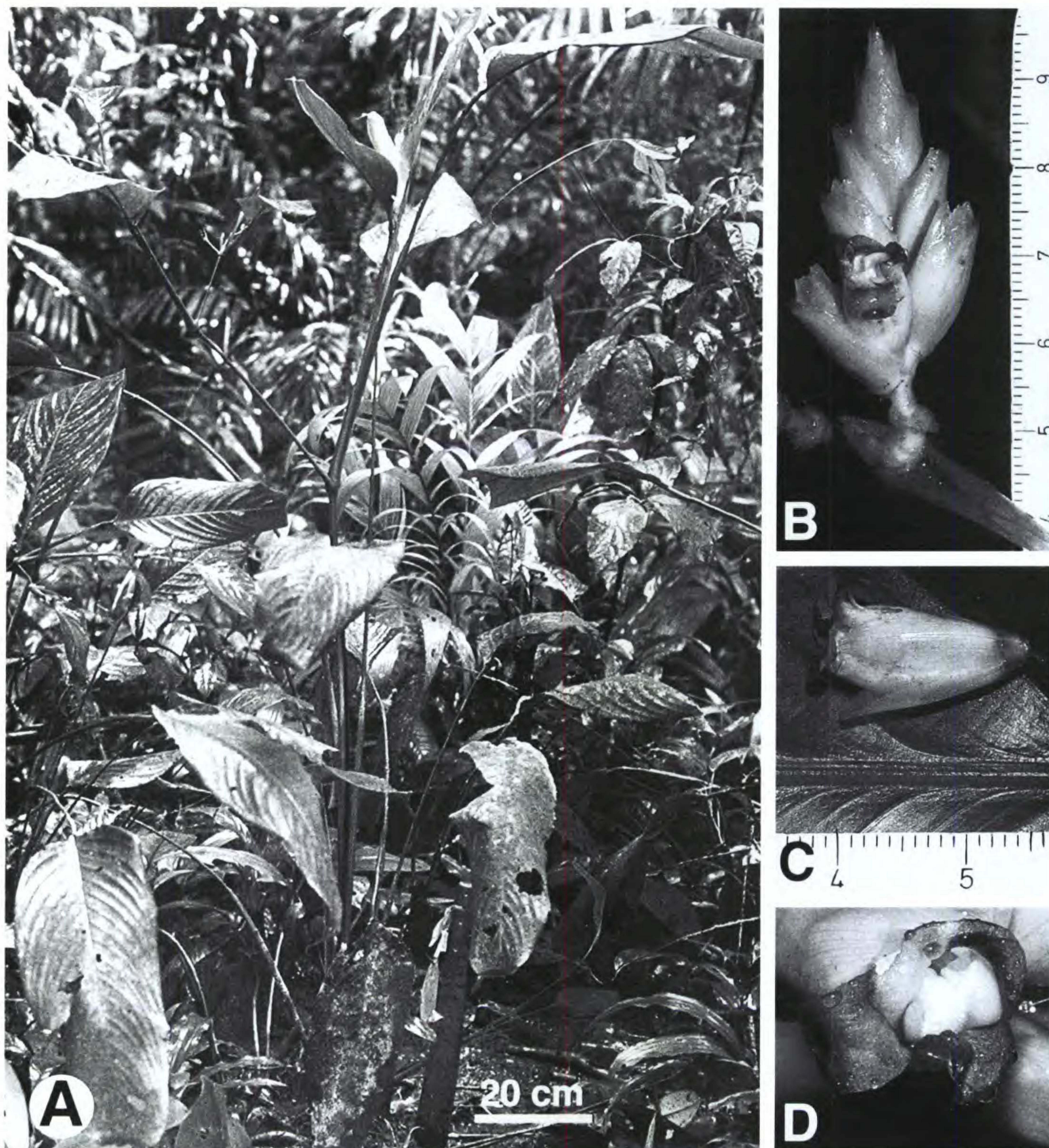


Figure 2. *Stromanthe palustris* H. Kennedy. —A. Habit. —B. Inflorescence. —C. Flower on upper leaf surface. —D. Flower, face view.

portion of the petiole. It is most closely related to *Calathea albo-vaginata* (K. Koch) K. Schumann, sharing the deciduous habit, reflexed sheath margins, and lack of a proper petiole. *Calathea singularis* differs from *C. albo-vaginata* in the green vs. white margin of the leaf sheath and the bracts erect, not reflexed at the apex.

Paratypes. BRAZIL. **Espírito Santo:** Munic. Linhares, Reserva Florestal da Cia. Vale do Rio Doce, Est. Gávea, ant. X-2, km 20,100, erva à beira da estrada, D. A. Folli 1026 (CVRD). Cultivated. Jardim Botânico do Rio

de Janeiro, 1954, G. Barroso s.n. (RB 88428); Jardim Botânico do Rio de Janeiro, without collector or date (RB 97116).

***Stromanthe palustris* H. Kennedy, sp. nov.**

TYPE: Costa Rica. Heredia: Finca La Selva, the OTS Field Station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, along Loop Trail on S side of Quebrada El Salto, ca. 6 m from trail, ca. 100 m, Aug. 1978, B. Kirchoff 6578 (holotype, CR; isotype, DUKE). Figure 2.

Aliis speciebus Americae centralis combinatione florum purpureorum, bractearum viridium et foliorum basalium praesentium bene distincta.

Caulescent, branched herb, 1.3–2.1 m high, bearing 3–5 basal leaves and 2–3 cauline on main stem, additional shoots often produced in the axils of the cauline leaves. Cataphylls stiff, coriaceous, narrowly ovate, apiculate, dark green tinged with purple; tomentose to subvillous basally, the hairs borne on a raised, wart-like, cushion of cells lacking purple pigmentation; up to 53 cm long. Leaves antitropic. Leaf blade herbaceous, ovate-oblong, apex rounded with eccentric acumen, base unequal, obtuse, often very shortly, abruptly, attenuate; 15–19 × 7–10.5 cm in subtending leaf, 26–62 × 11–20 cm in others. Leaf blade above shiny dark green, glabrous, midrib dark olive-green, pilose along each side at junction with blade; leaf surface below light green, glabrous except pilose along margin at apex, midrib olive-green, occasionally tinged with purple, pilose along sides, more densely so at the base. Pulvinus broadly elliptic in cross section, dark olive-green, tomentose along the front, the rest glabrous, articulate, ca. 2× wider than petiole, 0.9–4.8 cm long. Petiole dark green, tomentose to villous toward base, somewhat roughened with minute irregular warts, bearing a slight groove, (0)20–77 cm long, usually absent in uppermost cauline leaves. Leaf sheath with stiff, papery margins, not auriculate, deep green, lighter at margin, roughened, villous, hairs golden brown to 3 mm long; sheath of uppermost leaf 5–7 cm long, others 15–80 cm long. Base of leaf sheath swollen, whitish yellow. Stem green, slightly roughened, subvillous, hairs falling in age, the internode between the basal leaves and lowermost cauline leaf, 60–110 cm long. Inflorescences terminal and lateral, several per shoot, imbricate initially, spreading with age, ovate, laterally compressed, 5–8.7 × 2.5–3.3 cm. Peduncle light green to yellow-green, sparsely pilose, 1.5–13 cm long, longer in the axial inflorescences than the terminal ones. Bracts deciduous, distichous, 8–19 (generally only 6–12 present at any one time during the main flowering period) dorsiventrally oriented, conduplicately folded, very broadly elliptic to subround, apex rounded, occasionally with a very short acumen, 1.4–2.1 × 1.1–1.7 cm. Bracts herbaceous, chartreuse, glabrous except for a tuft of hairs at apex; inner surface shiny light green, each subtending up to 2 or more flower pairs. Bicarinate prophyll membranaceous, elliptic, apex obtuse, translucent light chartreuse, carina sparsely pilose at apex, the rest glabrous, ca. 0.7 × 1 cm. Sepals herbaceous, obovate to elliptic, obtuse, translucent chartreuse, glabrous,

13.5–16 × 5–6 mm. Corolla tube white, glabrous, ca. 3 mm long; corolla lobes subequal, elliptic, obtuse, white, pilose at apex, 7–8 × 4–5 mm. Outer staminodes oblong, rounded with minute acumen, basal ⅔ white, deflexed apical ⅓ purple, ca. 5 mm wide. Callose staminode petaloid apically, rounded, reddish purple at apex, white basally, ca. 9 × 6.5 mm. Cucullate staminode white, ca. 5 mm long. Anther light brown, 2 mm long. Style and stigma white. Ovary white, densely sericeous, hairs golden brown to 2 mm long, 2.5 × 2 mm. Capsule unknown.

Stromanthe palustris and *S. tonckat* (Aublet) Eichler are the only species of *Stromanthe* in Central America with purple flowers. *Stromanthe palustris* is readily distinguished from *S. tonckat* by the several basal and cauline leaves vs. strictly cauline leaves, the densely villous vs. sparsely appressed pilose leaf sheaths (hairs obvious to the naked eye vs. hairs only visible with lens or microscope), and the longer pulvinus (0.9–4.5 cm vs. 0.15–0.5 cm). *Stromanthe hjalmarssonii* (Körnigke) O. G. Petersen from Nicaragua, which has basal leaves and villous leaf sheaths, has cream-colored flowers and only one or two cauline leaves and does not have the additional leafy shoots in the axils of the lower cauline leaves found in *S. palustris*. The specific epithet, *palustris*, refers to the habitat of the species, growing in mucky, somewhat swampy, soil.

The description given under *Ctenanthe sp. nov.* in Hammel's (1986: 240) publication of Marantaceae for La Selva is of *Stromanthe palustris*. "*Ctenanthe sp. nov.*" referred to the populations on the Osa Peninsula that had purple bracts and distinctly villous leaf sheaths and petioles. These populations are now recognized as merely one end of the (clinal) variation within *Ctenanthe dasycarpa* (Donnell-Smith) K. Schumann, not a distinct species. *Ctenanthe dasycarpa* has basal leaves and may also have villous sheaths, but has persistent rather than deciduous bracts.

Ctenanthe and *Stromanthe* are closely related, both having antitropic leaves. While the majority of species are easily classified as belonging to one or the other of these genera, a few are problematic having some characters found in both. Although the longer sepal length (13 mm) is characteristic of *Ctenanthe*, I feel the aspect of deciduous rather than persistent bracts is more significant for its placement in *Stromanthe*. Unfortunately, the seed and capsule, which might have provided additional characters, were not found in any of the specimens examined.

Paratypes. COSTA RICA. **Heredia:** Finca La Selva,

the OTS Field Station on the Río Puerto Viejo just E of its junction with the Río Sarapiquí, along Quebrada El Saltito, back of Loop Trail, 900 m E, ca. 100 m, 29 Aug. 1980, *B. Hammel* 9627 (DUKE). **Limón:** Hitoy Cerere Reserve and vicinity in Valle La Estrella S of Finca Concepción, Los Jabillos, near station, 140 m, 09°42'N, 83°02'W, 2 Aug. 1985, *B. Hammel & M. Grayum* 14352 (CR); Hitoy Cerere Reserve and vicinity in Valle La Estrella, 09°40'00"N, 83°02'05"W, 28 Oct. 1990, *B. Hammel et al.* 17948 (CR).

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Literature Cited

- Hammel, B. E. 1986. The vascular flora of La Selva Biological Station, Marantaceae. *Selbyana* 9: 234–242.